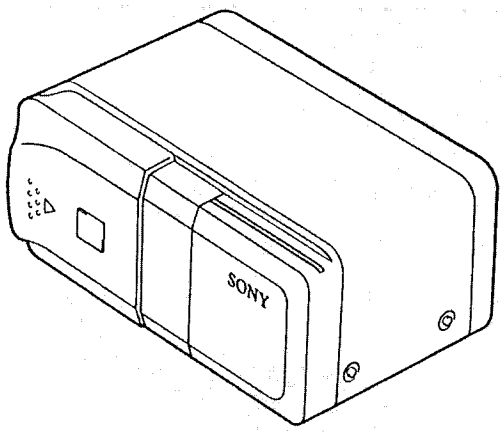
NEW TECHNICAL THEORY FOR SERVICING

MDX-60 MECHANISM OPERATION MANUAL



MINIDISC CHANGER SYSTEM

SONY®

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1. Layout of Main Parts

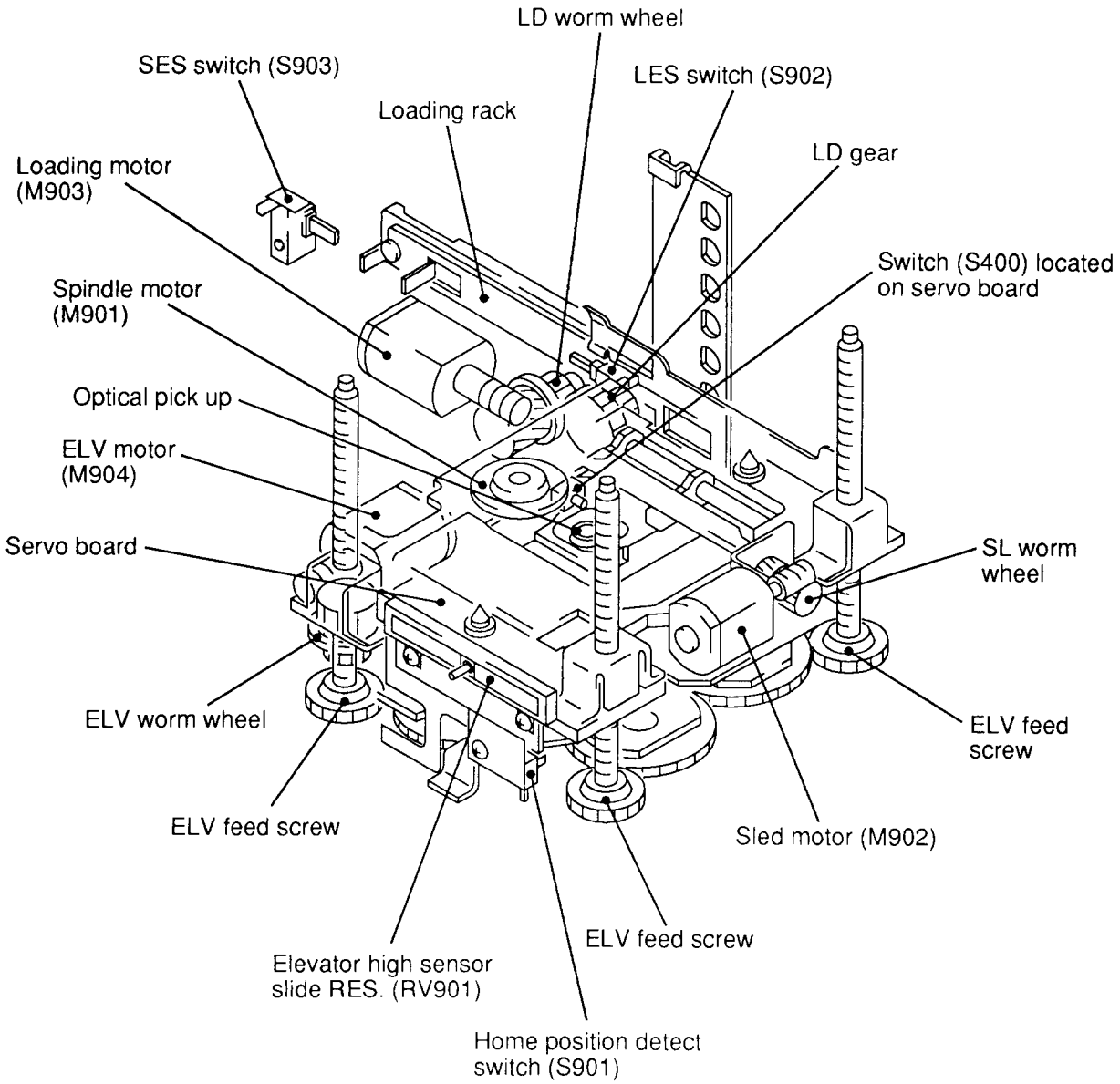
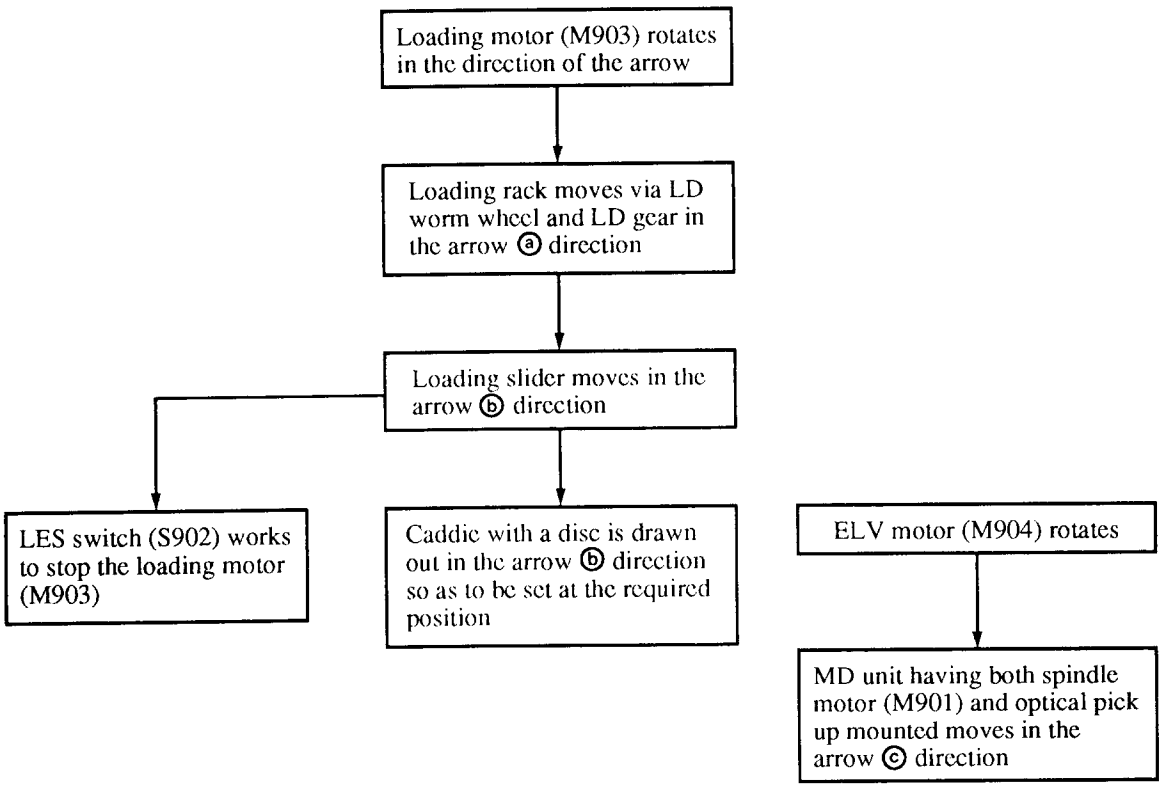


Fig. 1-1

2. Operational Function of Each Unit

2-1. Loading operation


Loading motor (M903) rotates in the direction of the arrow
Loading rack moves via LD worm wheel and LD gear in the arrow ⓐ direction
Loading slider moves in the arrow ⓑ direction
LES switch (S902) works to stop the loading motor (M903)
Caddic with a disc is drawn out in the arrow ⓑ direction so as to be set at the required position
ELV motor (M904) rotates
MD unit having both spindle motor (M901) and optical pick up mounted moves in the arrow ⓒ direction

* In this operation, the mounted disc is brought into focus at the optical pick up

NOTE : For drawing out of a disc (i.e. for unloading operation), the all arrows reverse in the illustration. In addition, upon completion of unloading work, SES switch (S903) will work to stop the loading motor (M903).

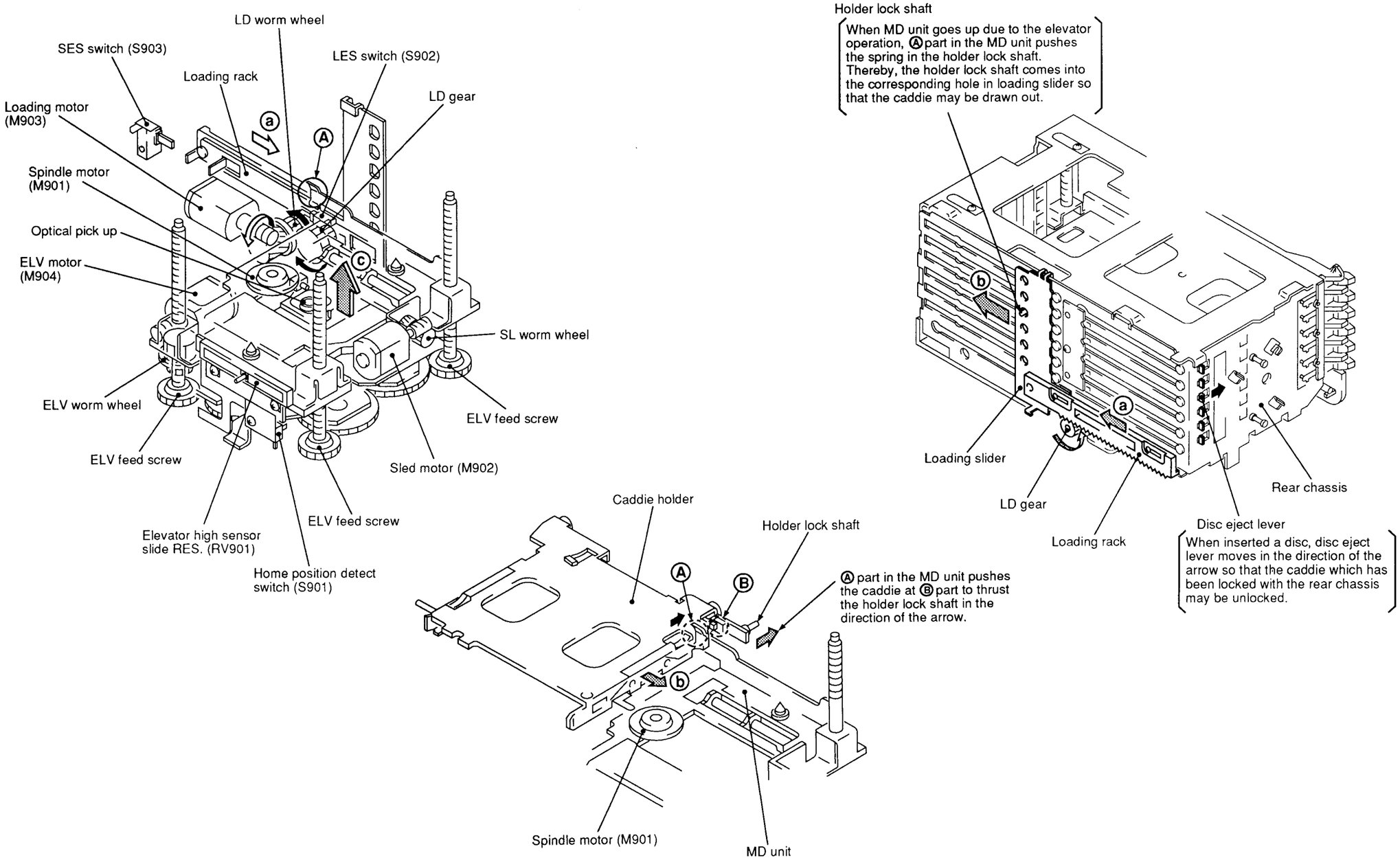
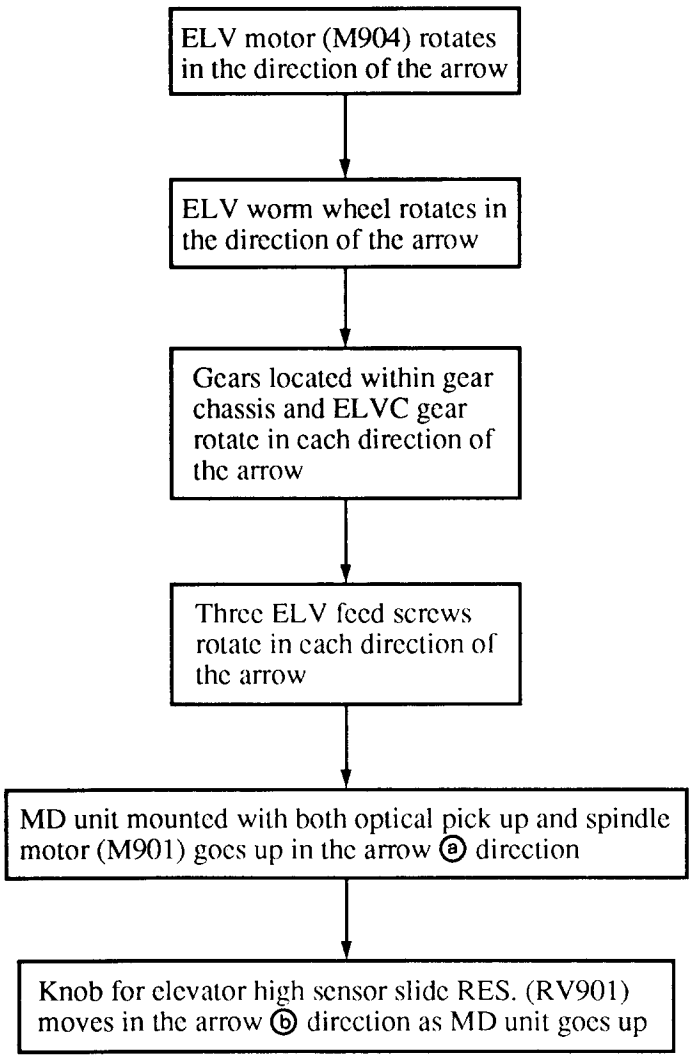

LD worm wheel
SES switch (S903)
LES switch (S902)
Loading rack
LD gear
Loading motor (M903)
Spindle motor (M901)
Optical pick up
ELV motor (M904)
SL worm wheel
ELV worm wheel
ELV feed screw
ELV feed screw
Sled motor (M902)
Elevator high sensor slide RES. (RV901)
ELV feed screw
Home position detect switch (S901)
Holder lock shaft
When MD unit goes up due to the elevator operation, Ⓐpart in the MD unit pushes the spring in the holder lock shaft. Thereby, the holder lock shaft comes into the corresponding hole in loading slider so that the caddie may be drawn out.
Loading slider
LD gear
Rear chassis
Disc eject lever
Loading rack
When inserted a disc, disc eject lever moves in the direction of the arrow so that the caddie which has been locked with the rear chassis may be unlocked.
Caddie holder
Holder lock shaft
Ⓐ part in the MD unit pushes the caddie at Ⓑ part to thrust the holder lock shaft in the direction of the arrow.
Spindle motor (M901)
MD unit

Fig. 2-1

2-2. Elevator operation


ELV motor (M904) rotates in the direction of the arrow
ELV worm wheel rotates in the direction of the arrow
Gears located within gear chassis and ELVC gear rotate in each direction of the arrow
Three ELV feed screws rotate in each direction of the arrow
MD unit mounted with both optical pick up and spindle motor (M901) goes up in the arrow ⓐ direction
Knob for elevator high sensor slide RES. (RV901) moves in the arrow ⓑ direction as MD unit goes up

* By this operation, the position of MD unit can be detected.

NOTE : For falling down of MD unit, all arrows reverse in the illustration. When it falls at the lowest position, home position detect switch (S901) then works to stop ELV motor (M904) so as to prevent MD unit from further falling. During while stopped the main equipment, MD unit is always positioned wherein a disc can be chucked (Only when pushed the stop button and also at the reset, it falls at the lowest position.)

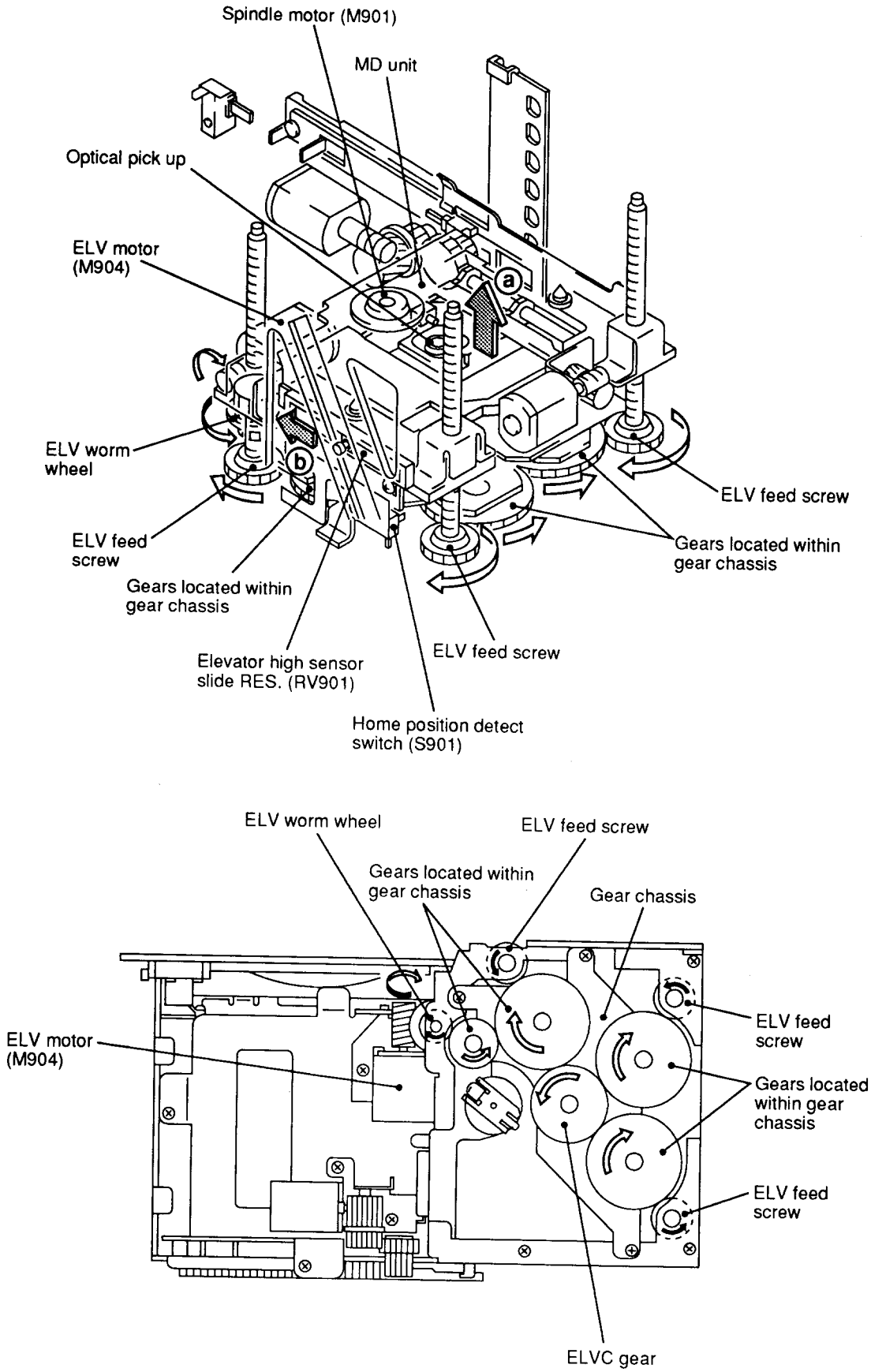
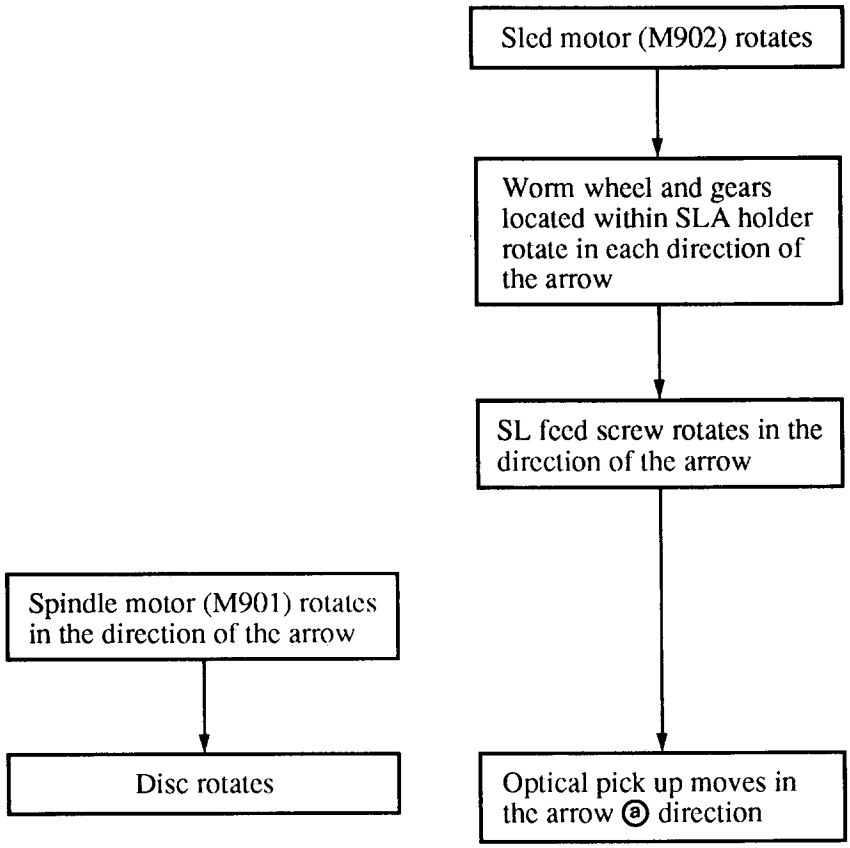

Spindle motor (M901)
MD unit
Optical pick up
ELV motor (M904)
ELV worm wheel
ELV feed screw
Gears located within gear chassis
ELV feed screw
Gears located within gear chassis
Elevator high sensor slide RES. (RV901)
ELV feed screw
Home position detect switch (S901)
ELV worm wheel
ELV feed screw
Gears located within gear chassis
Gear chassis
ELV motor (M904)
ELV feed screw
Gears located within gear chassis
ELV feed screw
ELVC gear

Fig. 2-2

2-3. Sled motor operation


Sled motor (M902) rotates
Worm wheel and gears located within SLA holder rotate in each direction of the arrow
SL feed screw rotates in the direction of the arrow
Optical pick up moves in the arrow ⓐ direction
Spindle motor (M901) rotates in the direction of the arrow
Disc rotates

* This operation initiates a playback mode.

NOTE : During while stopped the disc, optical pick up is always positioned at the inner in the disc. Therefore, whenever a new disc is inserted, it always moves from the inner to the outer in the disc (i.e. in the arrow direction in the illustration). Reversely, when moved from the outer to the inner, all arrows reverse in the illustration. When the optical pick up moves fully to the inner in the disc, then switch (S400) located on servo board works to stop the sled motor (M902).

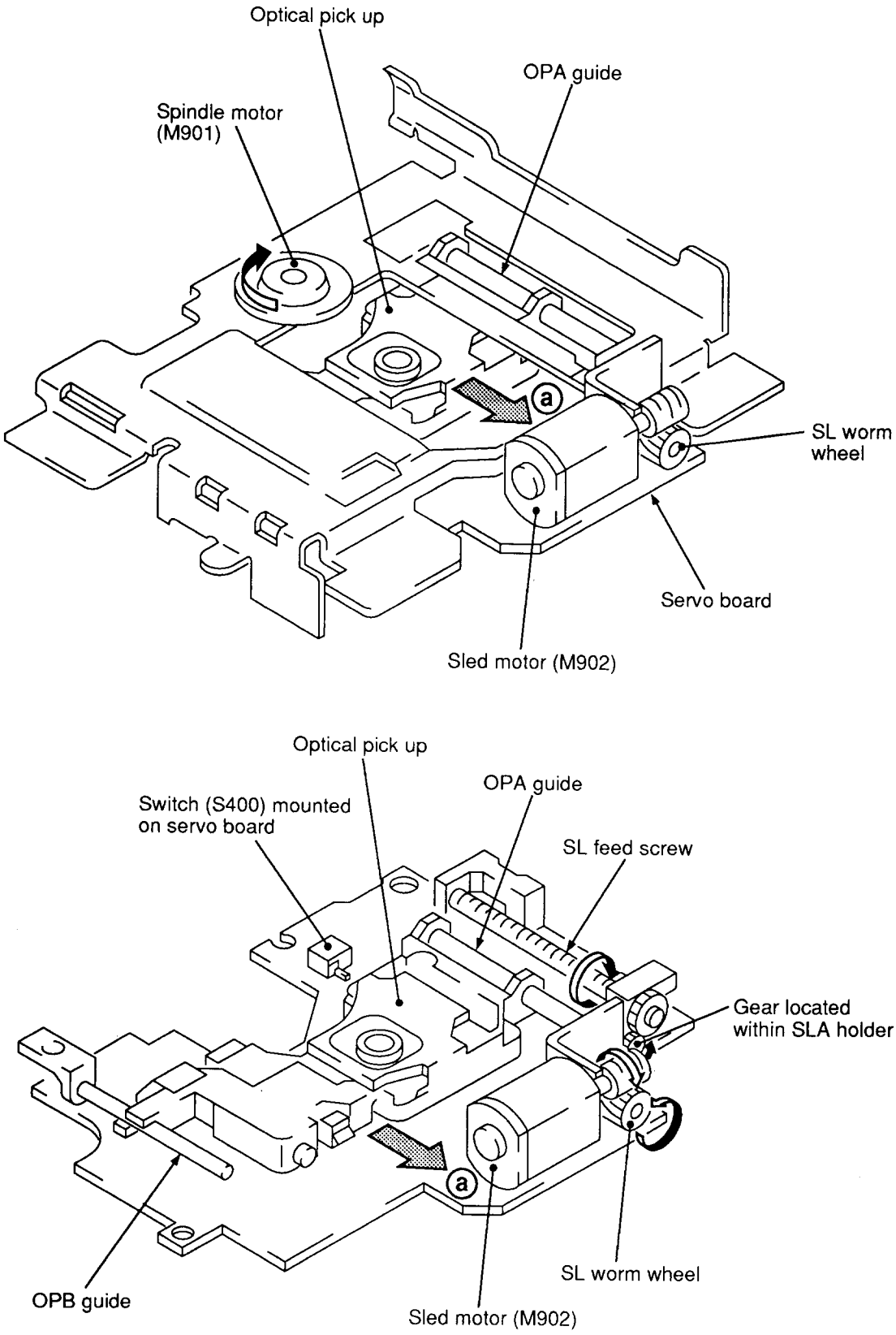
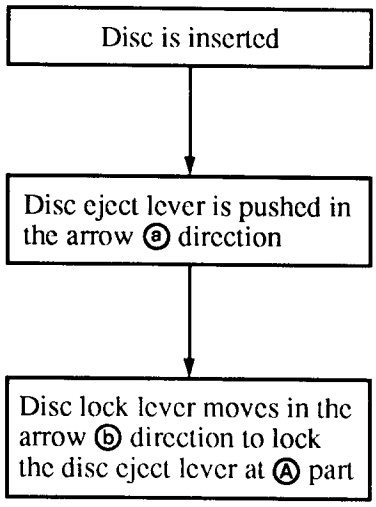

Optical pick up
OPA guide
Spindle motor
(M901)
a
SL worm
wheel
Servo board
Sled motor (M902)
Optical pick up
OPA guide
Switch (S400) mounted
on servo board
SL feed screw
Gear located
within SLA holder
a
SL worm wheel
OPB guide
Sled motor (M902)

Fig. 2-3

3. Operation at Each Mode

3-1. DISC IN


Disc is inserted
Disc eject lever is pushed in the arrow ⓐ direction
Disc lock lever moves in the arrow ⓑ direction to lock the disc eject lever at Ⓐ part

* By this operation, Ⓑ part in the disc lock lever comes into a nick so that a disc may be set.

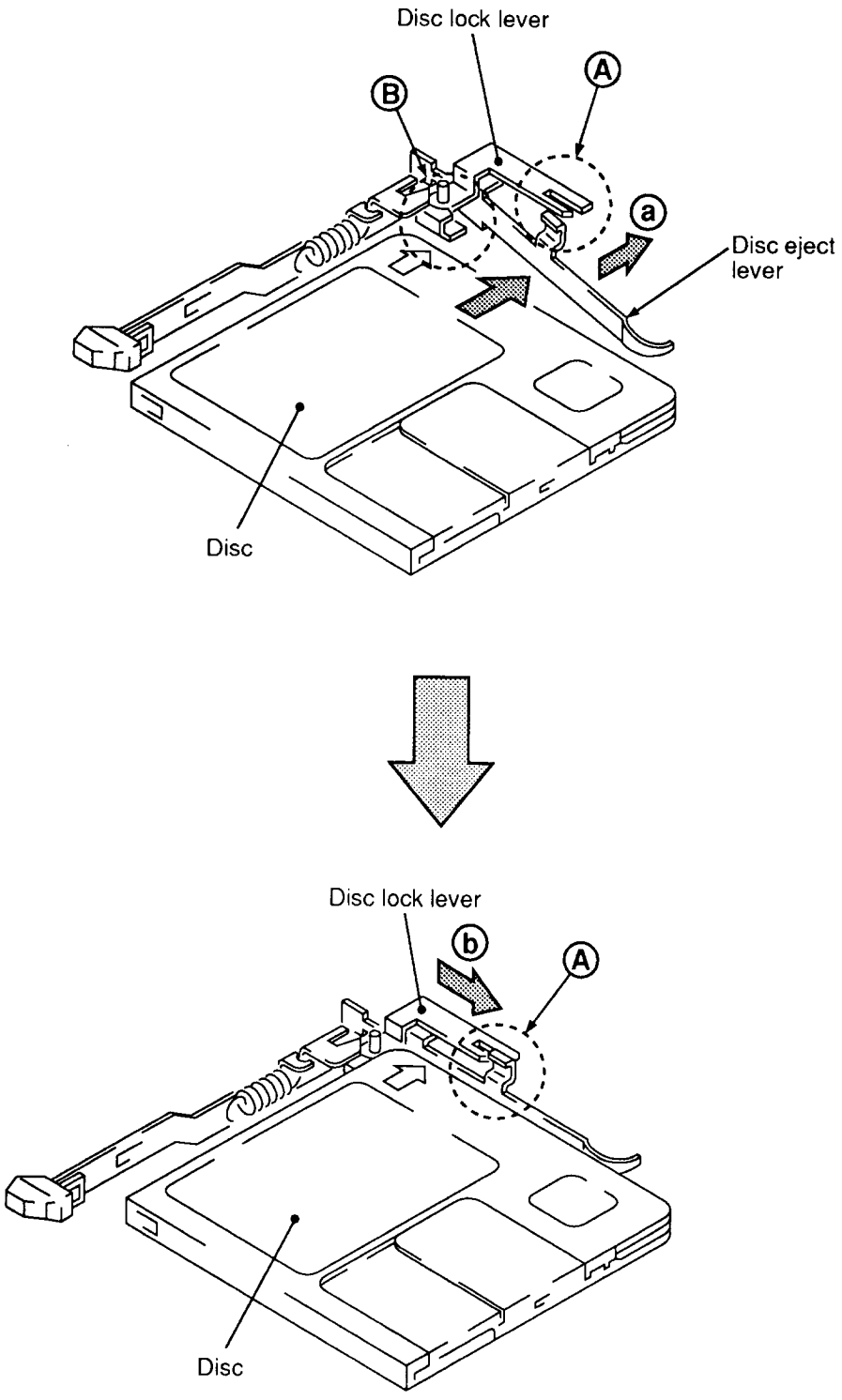
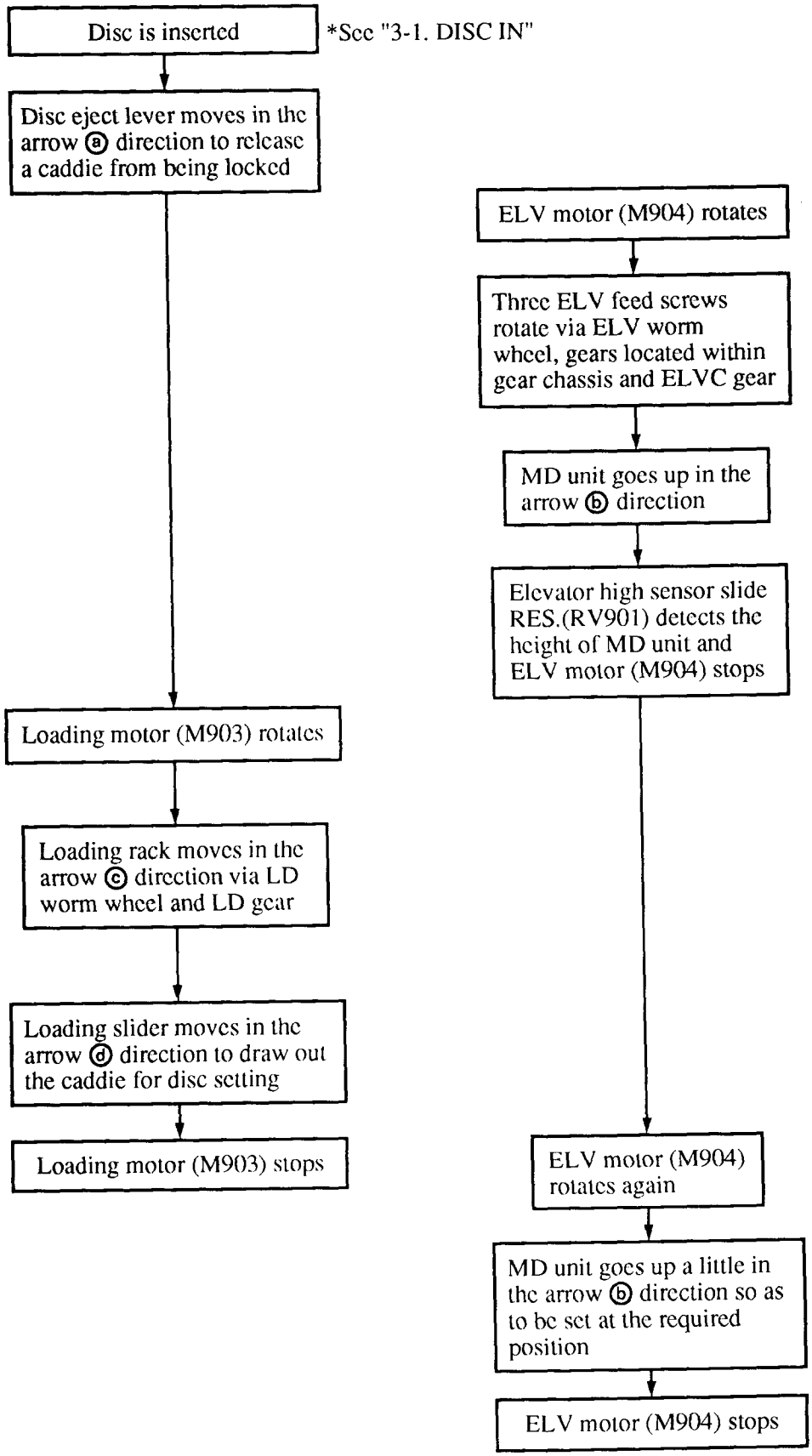

Disc lock lever
B
A
a
Disc eject
lever
Disc
Disc lock lever
b
A
Disc

Fig. 3-1

3-2. Loading


Disc is inserted
*See "3-1. DISC IN"
Disc eject lever moves in the arrow ⓐ direction to release a caddie from being locked
Loading motor (M903) rotates
Loading rack moves in the arrow ⓒ direction via LD worm wheel and LD gear
Loading slider moves in the arrow ⓓ direction to draw out the caddie for disc setting
Loading motor (M903) stops
ELV motor (M904) rotates
Three ELV feed screws rotate via ELV worm wheel, gears located within gear chassis and ELVC gear
MD unit goes up in the arrow ⓑ direction
Elevator high sensor slide RES.(RV901) detects the height of MD unit and ELV motor (M904) stops
ELV motor (M904) rotates again
MD unit goes up a little in the arrow ⓑ direction so as to be set at the required position
ELV motor (M904) stops

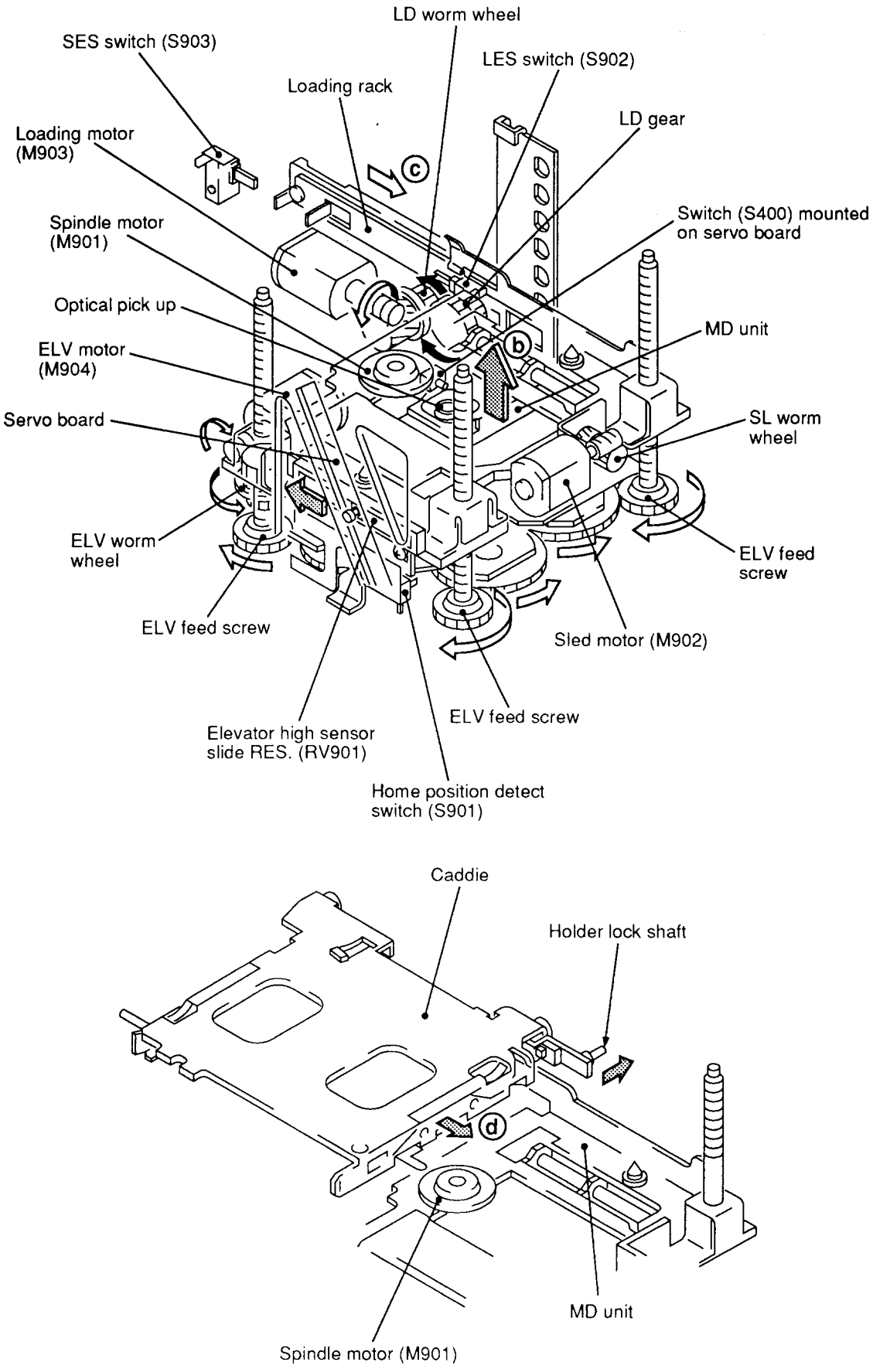
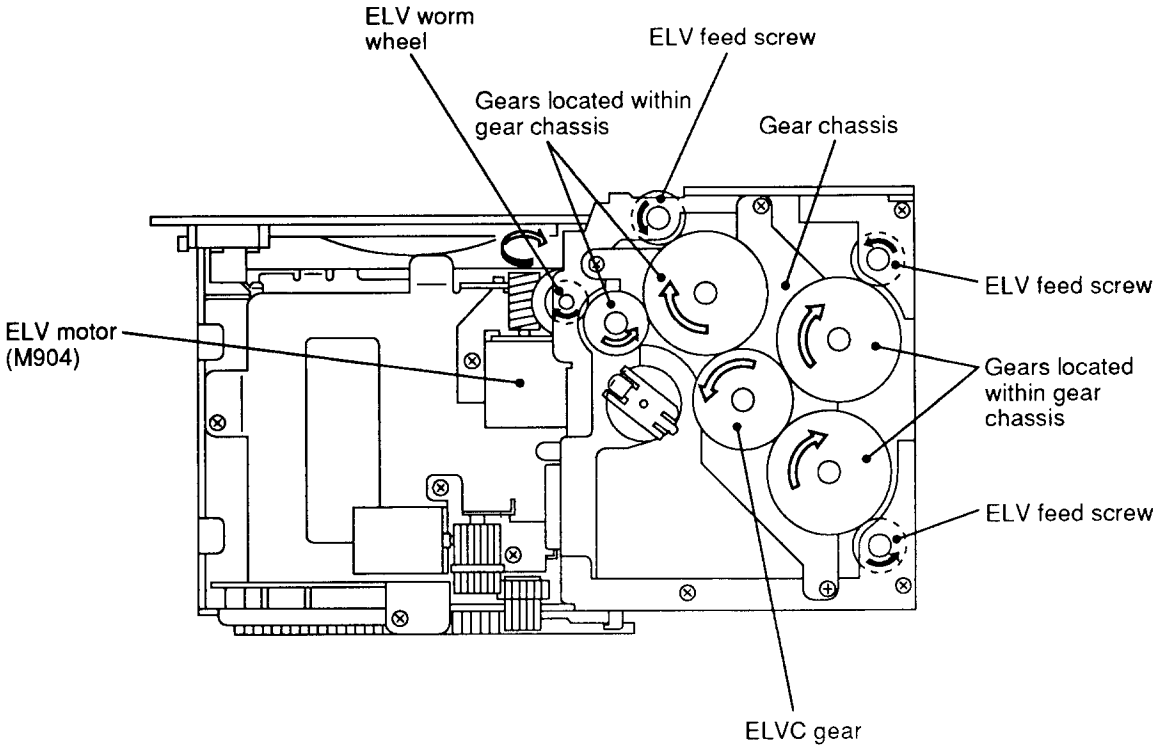

LD worm wheel
SES switch (S903)
LES switch (S902)
Loading rack
LD gear
Loading motor
(M903)
Switch (S400) mounted
on servo board
Spindle motor
(M901)
Optical pick up
MD unit
ELV motor
(M904)
Servo board
SL worm
wheel
ELV worm
wheel
ELV feed
screw
ELV feed screw
Sled motor (M902)
ELV feed screw
Elevator high sensor
slide RES. (RV901)
Home position detect
switch (S901)
Caddie
Holder lock shaft
MD unit
Spindle motor (M901)

Fig. 3-2


ELV worm wheel
ELV feed screw
Gears located within gear chassis
Gear chassis
ELV feed screw
ELV motor (M904)
Gears located within gear chassis
ELV feed screw
ELVC gear

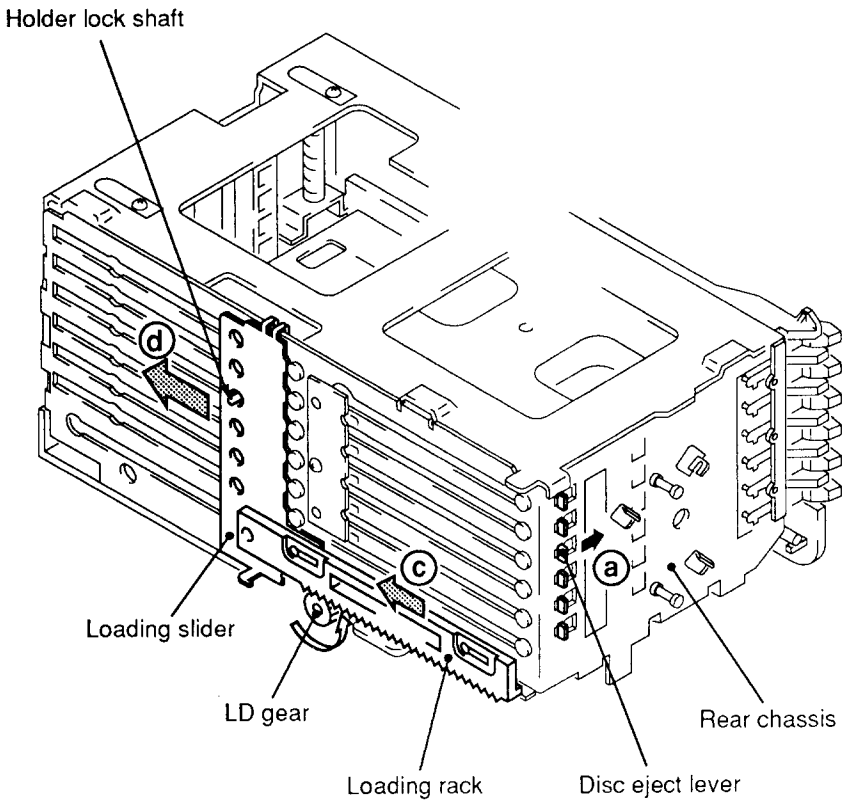
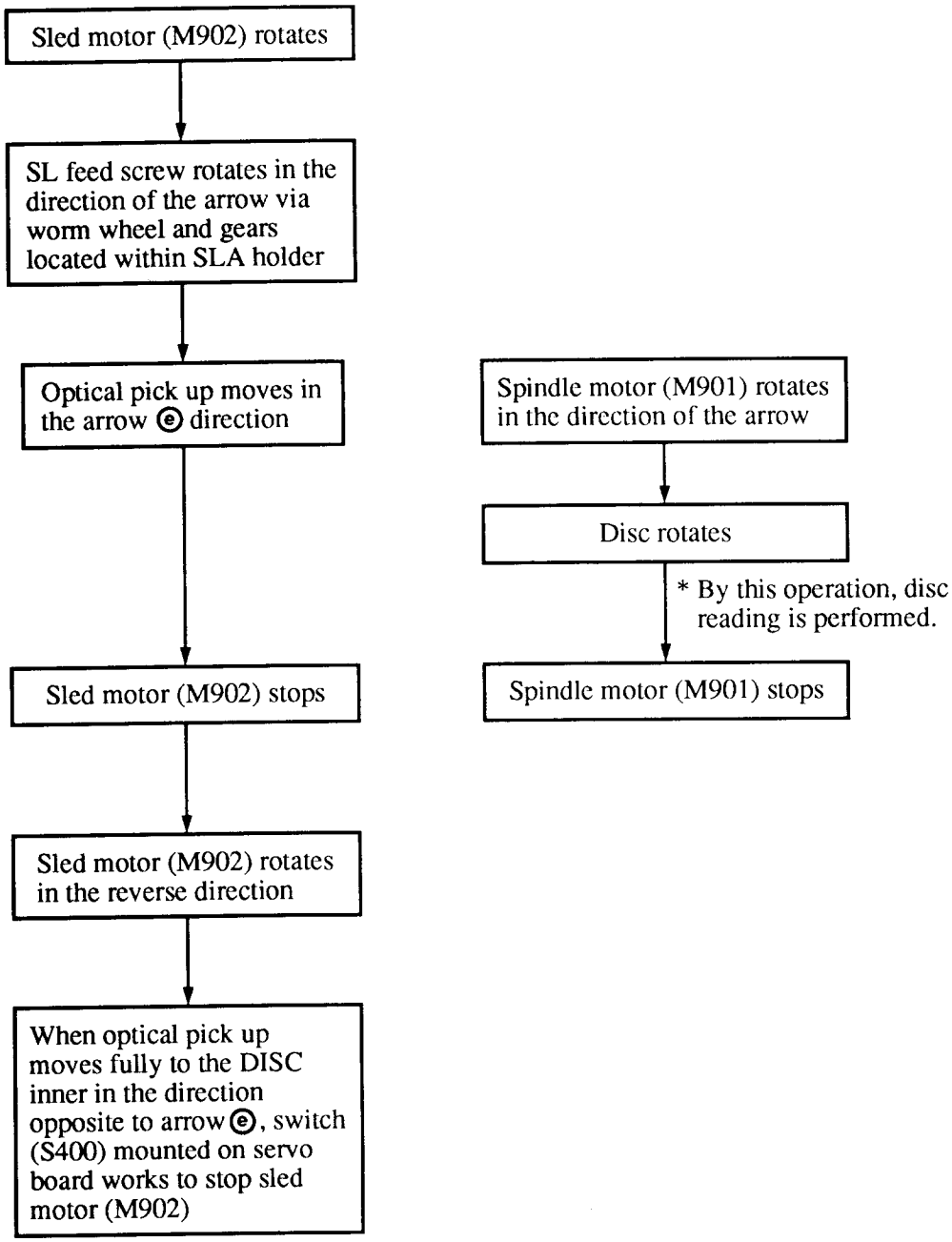
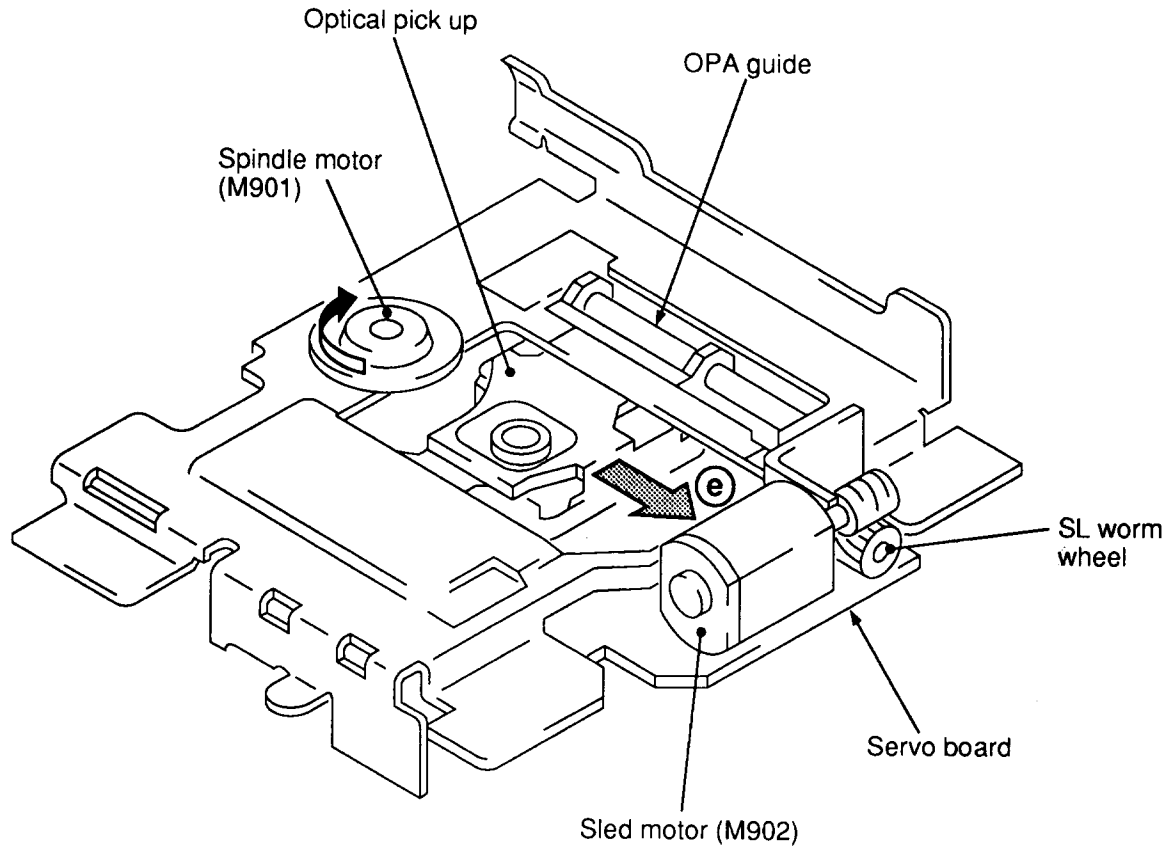

Holder lock shaft
d
c
a
Loading slider
LD gear
Loading rack
Disc eject lever
Rear chassis

Fig. 3-2

3-3. DISC reading


Sled motor (M902) rotates
SL feed screw rotates in the direction of the arrow via worm wheel and gears located within SLA holder
Optical pick up moves in the arrow ⓔ direction
Sled motor (M902) stops
Sled motor (M902) rotates in the reverse direction
When optical pick up moves fully to the DISC inner in the direction opposite to arrow ⓔ, switch (S400) mounted on servo board works to stop sled motor (M902)
Spindle motor (M901) rotates in the direction of the arrow
Disc rotates
* By this operation, disc reading is performed.
Spindle motor (M901) stops


Optical pick up
OPA guide
Spindle motor
(M901)
e
SL worm
wheel
Servo board
Sled motor (M902)

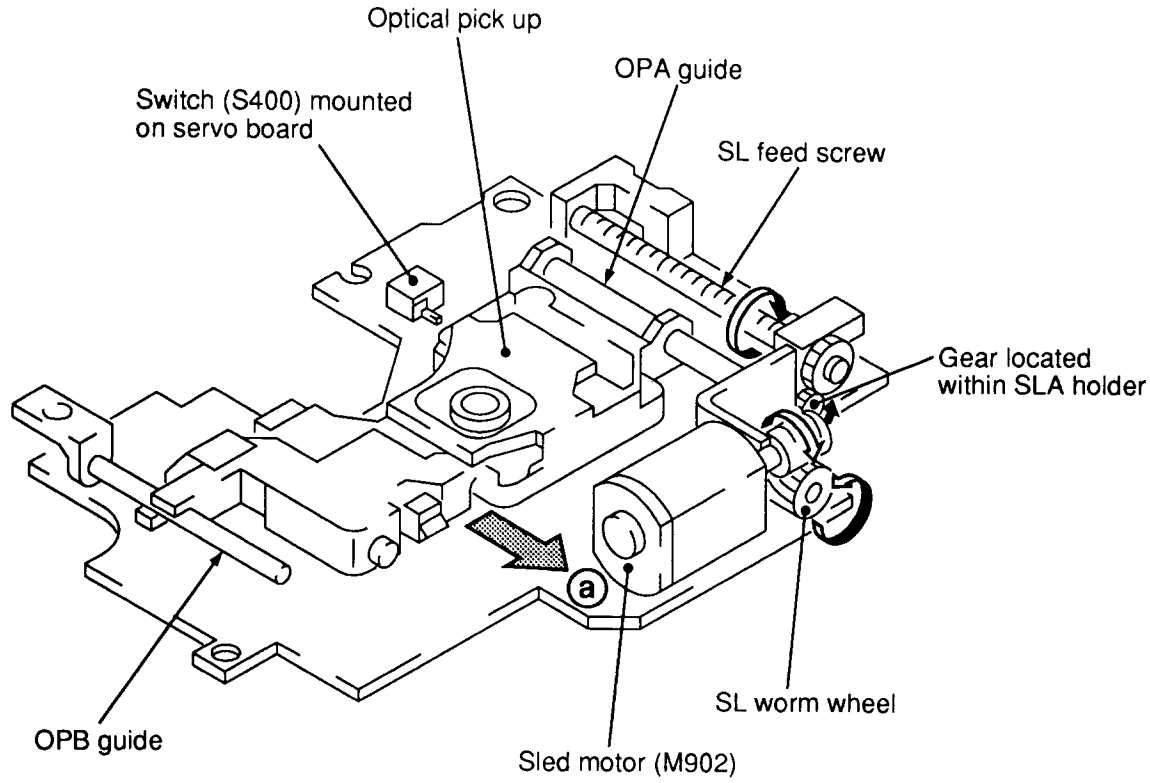
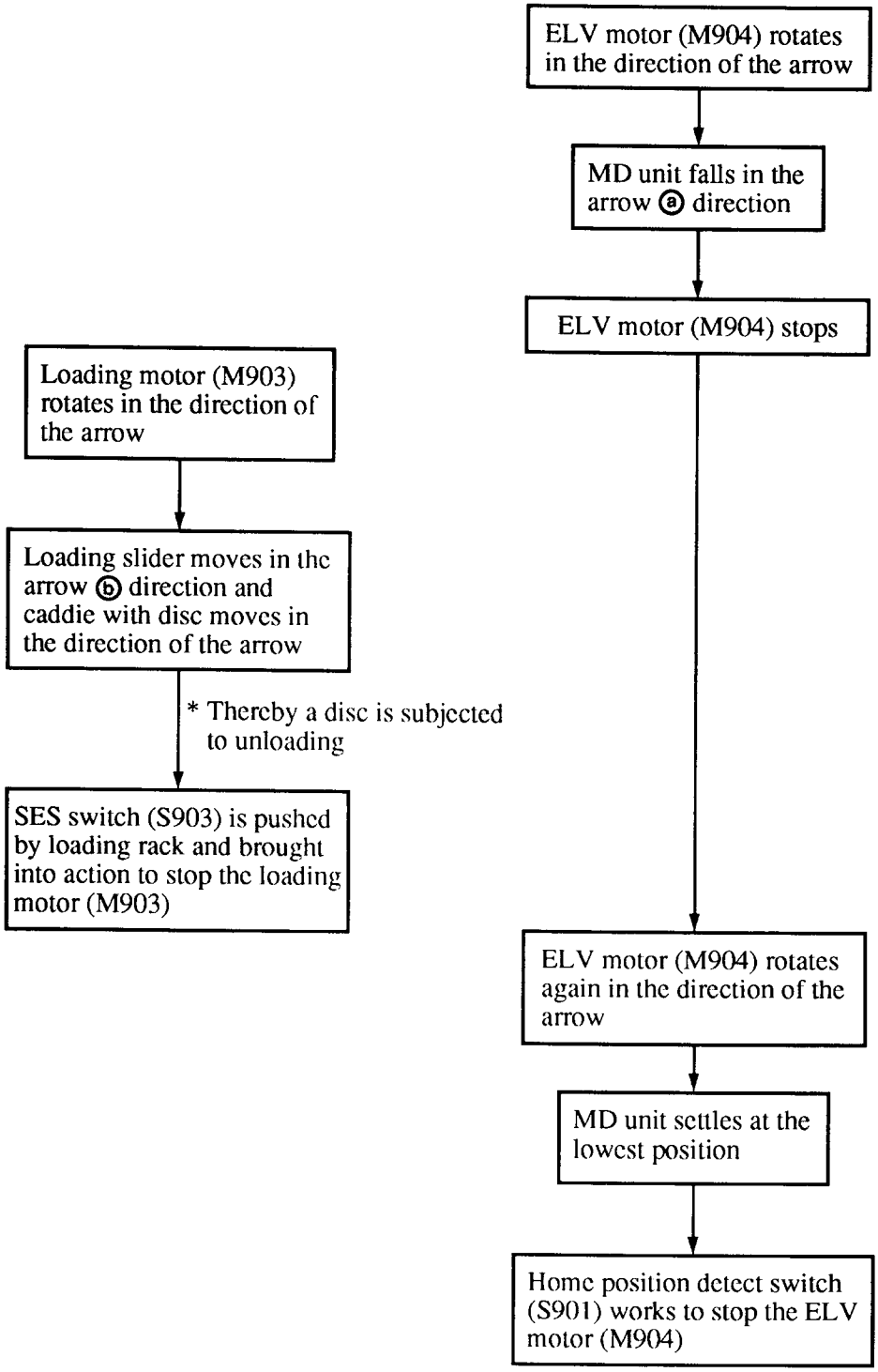
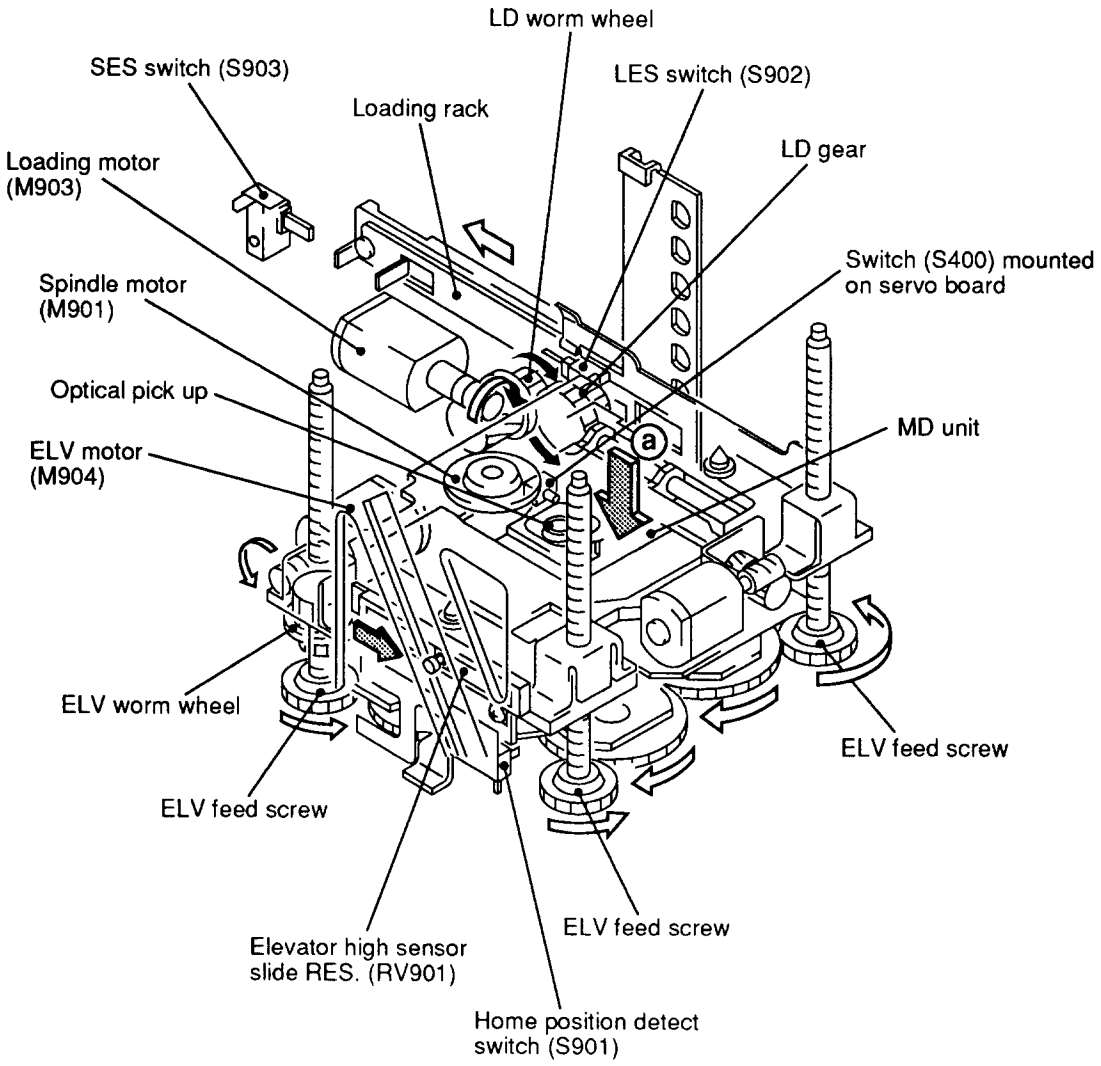
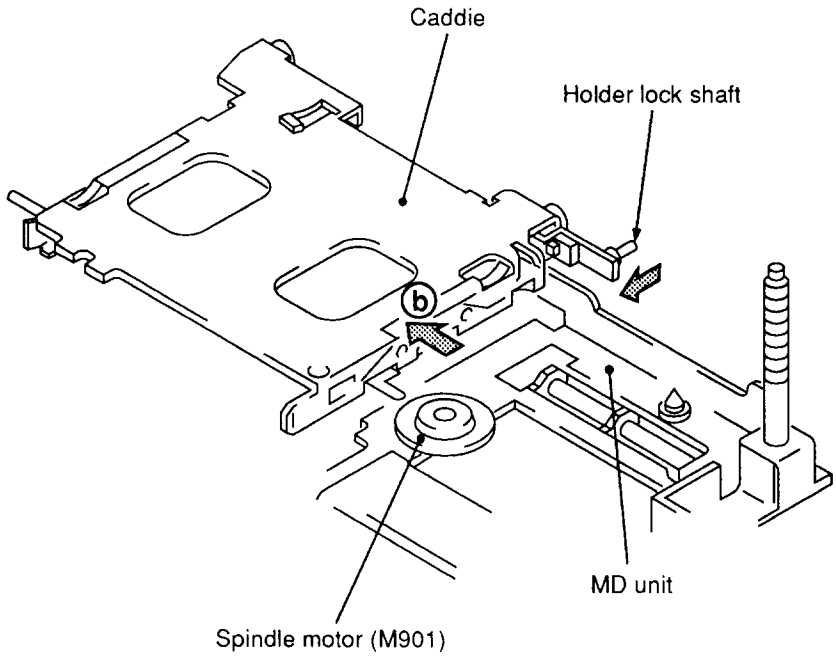

Optical pick up
OPA guide
Switch (S400) mounted
on servo board
SL feed screw
Gear located
within SLA holder
a
SL worm wheel
OPB guide
Sled motor (M902)

Fig. 3-3

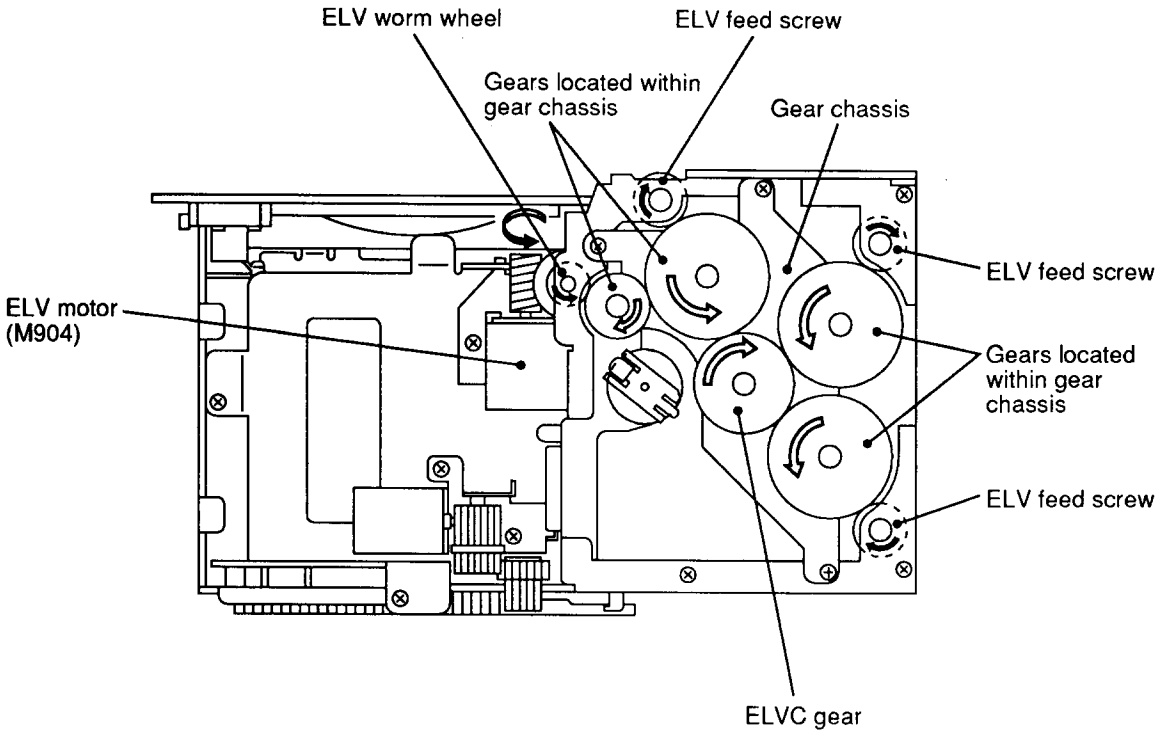
3-4. Unloading

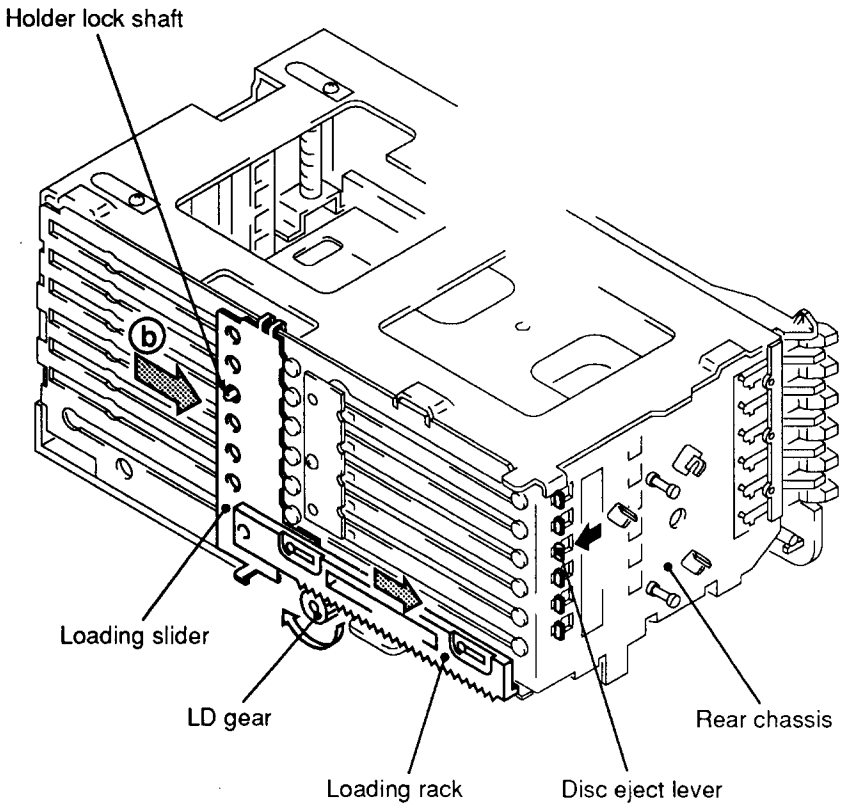

ELV motor (M904) rotates in the direction of the arrow
MD unit falls in the arrow ⓐ direction
ELV motor (M904) stops
Loading motor (M903) rotates in the direction of the arrow
Loading slider moves in the arrow ⓑ direction and caddie with disc moves in the direction of the arrow
* Thereby a disc is subjected to unloading
SES switch (S903) is pushed by loading rack and brought into action to stop the loading motor (M903)
ELV motor (M904) rotates again in the direction of the arrow
MD unit settles at the lowest position
Home position detect switch (S901) works to stop the ELV motor (M904)


LD worm wheel
SES switch (S903)
LES switch (S902)
Loading rack
LD gear
Loading motor
(M903)
Switch (S400) mounted
on servo board
Spindle motor
(M901)
Optical pick up
MD unit
ELV motor
(M904)
ELV worm wheel
ELV feed screw
ELV feed screw
ELV feed screw
Elevator high sensor
slide RES. (RV901)
Home position detect
switch (S901)


Caddie
Holder lock shaft
MD unit
Spindle motor (M901)

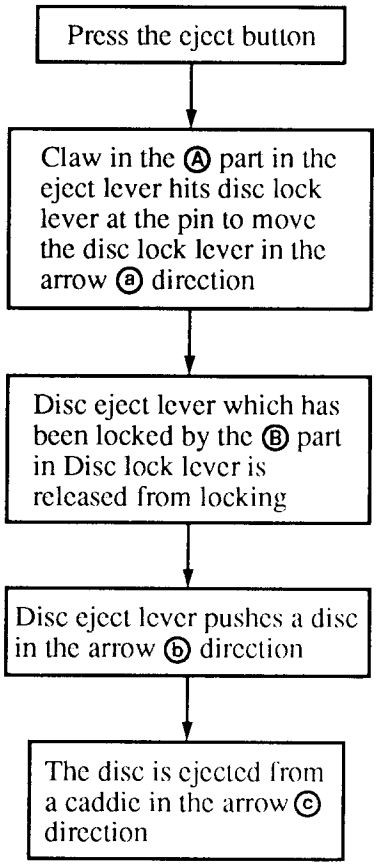
Fi


ELV worm wheel
ELV feed screw
Gears located within gear chassis
Gear chassis
ELV feed screw
ELV motor (M904)
Gears located within gear chassis
ELV feed screw
ELVC gear


Holder lock shaft
b
Loading slider
LD gear
Loading rack
Disc eject lever
Rear chassis

g. 3-4

3-5. DISC OUT


Press the eject button
Claw in the Ⓐ part in the eject lever hits disc lock lever at the pin to move the disc lock lever in the arrow ⓐ direction
Disc eject lever which has been locked by the Ⓑ part in Disc lock lever is released from locking
Disc eject lever pushes a disc in the arrow ⓑ direction
The disc is ejected from a caddie in the arrow ⓒ direction

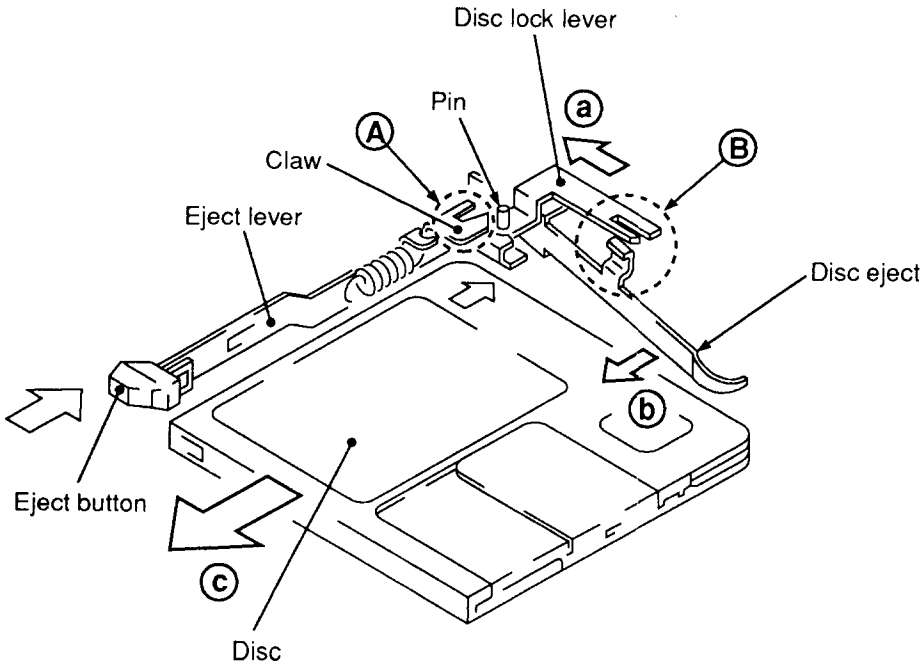


Fig. 3-5